

**DIRECT TESTIMONY**  
**OF**  
**JOHN J. SPANOS**  
**ON BEHALF OF**  
**SOUTH CAROLINA ELECTRIC & GAS COMPANY**  
**DOCKET NO. 2004-178-E**

1   **Q.   PLEASE STATE YOUR NAME AND ADDRESS.**

2   A.   My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill,  
3       Pennsylvania, 17011.

4   **Q.   ARE YOU ASSOCIATED WITH ANY FIRM?**

5   A.   Yes. I am associated with the firm of Gannett Fleming, Inc.

6   **Q.   HOW LONG HAVE YOU BEEN ASSOCIATED WITH GANNETT FLEMING,**  
7       **INC.?**

8   A.   I have been associated with the firm since college graduation in June 1986.

9   **Q.   WHAT IS YOUR POSITION WITH THE FIRM?**

10   A.   I am a Vice President of the Valuation and Rate Division.

11   **Q.   WHAT IS YOUR EDUCATIONAL BACKGROUND?**

12   A.   I have Bachelor of Science degrees in Industrial Management and Mathematics from  
13       Carnegie-Mellon University and a Master of Business Administration from York College  
14       of Pennsylvania.

15   **Q.   DO YOU BELONG TO ANY PROFESSIONAL SOCIETIES?**

16   A.   Yes. I am a member of the Society of Depreciation Professionals and the  
17       American Gas Association/Edison Electric Institute Industry Accounting Committee.

1   **Q.   DO YOU HOLD ANY SPECIAL CERTIFICATION AS A DEPRECIATION**  
2   **EXPERT?**

3   A.   Yes. The Society of Depreciation Professionals has established national standards for  
4   depreciation professionals. The Society administers an examination to become  
5   certified in this field. I passed the certification exam in September 1997, and was  
6   recertified in August 2003.

7   **Q.   PLEASE OUTLINE YOUR EXPERIENCE IN THE FIELD OF**  
8   **DEPRECIATION.**

9   A.   In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants,  
10   Inc. as a Depreciation Analyst. During the period June 1986 through December 1995,  
11   I assisted in the preparation of numerous depreciation and original cost studies for  
12   utility companies in various industries. I assisted in the conduct of depreciation  
13   studies for the following telephone companies: United Telephone Company of  
14   Pennsylvania, United Telephone Company of New Jersey and Anchorage Telephone  
15   Utility. In addition, I assisted in the conduct of depreciation studies for the following  
16   companies in the railroad industry: Union Pacific Railroad, Burlington Northern  
17   Railroad and Wisconsin Central Transportation Corporation.

18           I assisted in the preparation of depreciation studies for the following  
19   organizations in the electric industry: Chugach Electric Association, The Cincinnati  
20   Gas & Electric Company (CG&E), The Union Light, Heat and Power Company  
21   (ULH&P), Northwest Territories Power Corporation and the City of Calgary -  
22   Electric System.

1 I assisted in the preparation of depreciation studies for the following pipeline  
2 companies: TransCanada Pipelines Limited, Trans Mountain Pipe Line Company Ltd.,  
3 Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline  
4 Company.

5 I assisted in the preparation of depreciation studies for the following gas  
6 companies: Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples  
7 Natural Gas Company, T. W. Phillips Gas & Oil Company, CG&E, ULH&P,  
8 Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

9 I assisted in the preparation of depreciation studies for the following water  
10 companies: Indiana-American Water Company, Consumers Pennsylvania Water  
11 Company and The York Water Company; and depreciation and original cost studies  
12 for Philadelphia Suburban Water Company and Pennsylvania-American Water  
13 Company. In each of the above studies, I assembled and analyzed historical and  
14 simulated data, performed field reviews, developed preliminary estimates of service  
15 life and net salvage, calculated annual depreciation, and prepared reports for  
16 submission to state public utility commissions or Federal regulatory agencies.

17 In January 1996, I was assigned to the position of Supervisor of Depreciation  
18 Studies. In July 1999, I was promoted to the position of Manager, Depreciation and  
19 Valuation Studies. In December 2000, I attained my current position of Vice  
20 President.

21 I am responsible for conducting depreciation, valuation and original cost  
22 studies, including the preparation of final exhibits and responses to data requests for

1 submission to the appropriate regulatory bodies. Since January 1996, I have  
2 conducted depreciation studies similar to those previously listed including assignments  
3 for Hampton Water Works Company, Omaha Public Power District, Enbridge Pipe  
4 Line Company, Inc., Columbia Gas of Virginia, Inc., Virginia Natural Gas Company,  
5 National Fuel Gas Distribution Corporation - New York and Pennsylvania Divisions,  
6 The City of Bethlehem - Bureau of Water, The City of Coatesville Authority, The  
7 City of Lancaster - Bureau of Water, Peoples Energy Corporation, The York Water  
8 Company, Public Service Company of Colorado, Reliant Energy-HLP,  
9 Massachusetts-American Water Company, St. Louis County Water Company,  
10 Missouri-American Water Company, Chugach Electric Association, Alliant Energy,  
11 Oklahoma Gas and Electric Company, Nevada Power Company, Dominion Virginia  
12 Power, NUI-Virginia Gas Companies, PSI Energy, NUI - Elizabethtown Gas  
13 Company, Cinergy Corporation – CG&E, Cinergy Corporation – ULH&P, Columbia  
14 Gas of Kentucky, Idaho Power Company, El Paso Electric Company, Centennial  
15 Pipeline Company, NSTAR – Boston Edison Company, South Jersey Gas Company,  
16 EPCOR Distribution, Inc. and B. C. Gas Utility, Ltd.

17 My additional duties include determining final life and salvage estimates,  
18 conducting field reviews, presenting recommended depreciation rates to management  
19 for its consideration and supporting such rates before regulatory bodies.

20 **Q. HAVE YOU SUBMITTED TESTIMONY TO ANY STATE UTILITY**  
21 **COMMISSIONS ON THE SUBJECT OF UTILITY PLANT**  
22 **DEPRECIATION?**

1 A. Yes. I have submitted testimony to the Pennsylvania Public Utility Commission, the  
2 Commonwealth of Kentucky Public Service Commission, the Public Utilities  
3 Commission of Ohio, the Public Utility Commission of Nevada, Indiana Utility  
4 Regulatory Commission, the Public Utilities Board of New Jersey, Missouri Public  
5 Service Commission, Louisiana Public Service Commission, Corporation Commission  
6 of the State of Oklahoma, and the Massachusetts Department of Telecommunications  
7 and Energy.

8 **Q. HAVE YOU RECEIVED ANY ADDITIONAL EDUCATION RELATING TO**  
9 **UTILITY PLANT DEPRECIATION?**

10 A. Yes. I have completed the following courses conducted by Depreciation Programs,  
11 Inc.: “Techniques of Life Analysis,” “Techniques of Salvage and Depreciation  
12 Analysis,” “Forecasting Life and Salvage,” “Modeling and Life Analysis Using  
13 Simulation” and “Managing a Depreciation Study.”

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
15 **PROCEEDING?**

16 A. My testimony will support and explain the depreciation study conducted under my  
17 direction and supervision for the electric utility plant of South Carolina Electric and  
18 Gas Company (“SCE&G” or “Company”). The study represents all electric and  
19 common plant assets.

20 **Q. PLEASE DEFINE THE CONCEPT OF DEPRECIATION.**

21 A. Depreciation refers to the loss in service value not restored by current maintenance,  
22 incurred in connection with the consumption or prospective retirement of utility plant

1 in the course of service from causes that can be reasonably anticipated or  
2 contemplated, against which the Company is not protected by insurance. Among the  
3 causes to be given consideration are wear and tear, decay, action of the elements,  
4 obsolescence, changes in the art, changes in demand and the requirements of public  
5 authorities.

6 **Q. PLEASE IDENTIFY EXHIBIT JJS-1.**

7 A. Exhibit JJS-1 is a report entitled, "Depreciation Study - Calculated Annual  
8 Depreciation Accruals Related to Electric Plant as of December 31, 2003." This  
9 report sets forth the results of my depreciation study for SCE&G.

10 **Q. IS EXHIBIT JJS-1 A TRUE AND ACCURATE COPY OF YOUR**  
11 **DEPRECIATION STUDY?**

12 A. Yes.

13 **Q. DOES EXHIBIT JJS-1 ACCURATELY PORTRAY THE RESULTS OF**  
14 **YOUR DEPRECIATION STUDY AS OF DECEMBER 31, 2003?**

15 A. Yes.

16 **Q. WHAT WAS THE PURPOSE OF YOUR DEPRECIATION STUDY?**

17 A. The purpose of the depreciation study was to estimate the annual depreciation  
18 accruals related to electric and common plant in service for financial and ratemaking  
19 purposes and determine appropriate average service lives and net salvage percents for  
20 each plant account.

21 **Q. PLEASE DESCRIBE THE CONTENTS OF YOUR REPORT.**

1 A. My report is presented in three parts. Part I, Introduction, presents the scope and  
2 basis for the depreciation study. Part II, Methods Used in the Estimation of  
3 Depreciation, includes descriptions of the basis of the study, the estimation of survivor  
4 curves and net salvage and the calculation of annual and accrued depreciation. Part  
5 III, Results of Study, presents a description of the results, and a summary of the  
6 depreciation calculations.

7 The tables on pages III-3 through III-9 present the estimated survivor curve,  
8 the net salvage percent, the original cost as of December 31, 2003, the book reserve  
9 and the calculated annual depreciation accrual and rate for each account or  
10 subaccount for the companies.

11 **Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR DEPRECIATION**  
12 **STUDY.**

13 A. I used the straight line remaining life method of depreciation, with the average service  
14 life procedure. The annual depreciation is based on a method of depreciation  
15 accounting that seeks to distribute the unrecovered cost of fixed capital assets over  
16 the estimated remaining useful life of each unit, or group of assets, in a systematic and  
17 rational manner.

18 For General Plant Accounts 391.1, 391.2, 391.21, 391.3, 393.0, 394.1, 394.2,  
19 394.3, 394.4, 395.1, 395.2, 395.3, 397.0, and 398.0, and Common Plant Accounts  
20 691.1, 691.2, 691.21, 691.3, 693.0, 694.1, 694.3, 694.4, 695.2, 695.3, 697.0 and  
21 698.0 I used the straight line remaining life method of amortization. The annual  
22 amortization is based on amortization accounting that distributes the unrecovered cost

1 of fixed capital assets over the remaining amortization period selected for each  
2 account and vintage.

3 **Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL**  
4 **DEPRECIATION ACCRUAL RATES?**

5 A. I did this in two phases. In the first phase, I estimated the service life and net salvage  
6 characteristics for each depreciable group, that is, each plant account or subaccount  
7 identified as having similar characteristics. In the second phase, I calculated the  
8 composite remaining lives and annual depreciation accrual rates based on the service  
9 life and net salvage estimates determined in the first phase.

10 **Q. PLEASE DESCRIBE THE FIRST PHASE OF THE DEPRECIATION STUDY,**  
11 **IN WHICH YOU ESTIMATED THE SERVICE LIFE AND NET SALVAGE**  
12 **CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.**

13 A. The service life and net salvage study consisted of compiling historic data from  
14 records related to SCE&G's plant; analyzing these data to obtain historic trends of  
15 survivor and net salvage characteristics; obtaining supplementary information from  
16 SCE&G's management, and operating personnel concerning practices and plans as  
17 they relate to plant operations; and interpreting the above data and the estimates used  
18 by other electric utilities to form judgments of average service life and net salvage  
19 characteristics.

20 **Q. WHAT HISTORIC DATA DID YOU ANALYZE FOR THE PURPOSE OF**  
21 **ESTIMATING SERVICE LIFE CHARACTERISTICS?**



1 A. I analyzed the Company's accounting entries that record plant transactions during the  
2 period 1911 through 2003. The transactions included additions, retirements, transfers  
3 and the related balances. The Company records also included surviving dollar value  
4 by year installed for each plant account as of December 31, 2003.

5 **Q. WHAT METHOD DID YOU USE TO ANALYZE THIS SERVICE LIFE**  
6 **DATA?**

7 A. I used the retirement rate method. This is the most appropriate method when aged  
8 retirement data are available, because this method determines the average rates of  
9 retirement actually experienced by the Company during the period of time covered by  
10 the study.

11 **Q. PLEASE DESCRIBE HOW YOU USED THE RETIREMENT RATE**  
12 **METHOD TO ANALYZE SCE&G'S SERVICE LIFE DATA.**

13 A. I applied the retirement rate method to each different group of property in the study.  
14 For each property group, I used the retirement rate method to form a life table which,  
15 when plotted, shows an original survivor curve for that property group. Each original  
16 survivor curve represents the average survivor pattern experienced by the several  
17 vintage groups during the experience band studied. The survivor patterns do not  
18 necessarily describe the life characteristics of the property group; therefore,  
19 interpretation of the original survivor curves is required in order to use them as valid  
20 considerations in estimating service life. The Iowa-type survivor curves were used to  
21 perform these interpretations.

1   **Q.    WHAT IS AN “IOWA-TYPE SURVIVOR CURVE” AND HOW DID YOU**  
2       **USE SUCH CURVES TO ESTIMATE THE SERVICE LIFE**  
3       **CHARACTERISTICS FOR EACH PROPERTY GROUP?**

4    A.   Iowa type curves are a widely used group of generalized survivor curves that contain  
5       the range of survivor characteristics usually experienced by utilities and other  
6       industrial companies. The Iowa curves were developed at the Iowa State College  
7       Engineering Experiment Station through an extensive process of observing and  
8       classifying the ages at which various types of property used by utilities and other  
9       industrial companies had been retired.

10           Iowa type curves are used to smooth and extrapolate original survivor curves  
11       determined by the retirement rate method. The Iowa curves and truncated Iowa  
12       curves were used in this study to describe the forecasted rates of retirement based on  
13       the observed rates of retirement and the outlook for future retirements.

14           The estimated survivor curve designations for each depreciable property group  
15       indicate the average service life, the family within the Iowa system to which the  
16       property group belongs, and the relative height of the mode. For example, the Iowa  
17       60-R2 indicates an average service life of sixty years; a right-moded, or R, type curve  
18       (the mode occurs after average life for right-moded curves); and a moderate height, 2,  
19       for the mode (possible modes for R type curves range from 1 to 5).

20   **Q.    WHAT APPROACH DID YOU USE TO ESTIMATE THE LIVES OF**  
21       **SIGNIFICANT STRUCTURES AND PRODUCTION FACILITIES?**

1 A. I used the life span technique to estimate the lives of significant facilities for which  
2 concurrent retirement of the entire facility is anticipated. In this technique, the  
3 survivor characteristics of such facilities are described by the use of interim survivor  
4 curves and estimated probable retirement dates. The interim survivor curve describes  
5 the rate of retirement related to the replacement of elements of the facility, such as,  
6 for a building, the retirements of plumbing, heating, doors, windows, roofs, etc., that  
7 occur during the life of the facility. The probable retirement date provides the rate of  
8 final retirement for each year of installation for the facility by truncating the interim  
9 survivor curve for each installation year at its attained age at the date of probable  
10 retirement. The use of interim survivor curves truncated at the date of probable  
11 retirement provides a consistent method for estimating the lives of the several years of  
12 installation for a particular facility inasmuch as a single concurrent retirement for all  
13 years of installation will occur when it is retired.

14 **Q. HAS GANNETT FLEMING USED THIS APPROACH IN OTHER**  
15 **PROCEEDINGS?**

16 A. Yes, we have used the life span technique in performing depreciation studies  
17 presented to many public utility commissions across the United States and Canada.

18 **Q. ARE THE FACTORS CONSIDERED IN YOUR ESTIMATES OF SERVICE**  
19 **LIFE AND NET SALVAGE PERCENTS PRESENTED IN EXHIBIT JJS-1?**

20 A. Yes. A discussion of the factors considered in the estimation of service lives and net  
21 salvage percents are presented on pages II-27 through II-30 of Exhibit JJS-1.

1 **Q. DID YOU PHYSICALLY OBSERVE SCE&G’S PLANT AND EQUIPMENT**  
2 **AS PART OF YOUR DEPRECIATION STUDY?**

3 A. Yes. I made a field review of SCE&G’s property to observe representative portions  
4 of plant. Field reviews are conducted to become familiar with Company operations  
5 and obtain an understanding of the function of the plant and information with respect  
6 to the reasons for past retirements and the expected future causes of retirements. This  
7 knowledge was incorporated in the interpretation and extrapolation of the statistical  
8 analyses.

9 **Q. WOULD YOU PLEASE EXPLAIN THE CONCEPT OF “NET SALVAGE”?**

10 A. Net salvage is a component of the service value of capital assets that is recovered  
11 through depreciation rates. The service value of an asset is its original cost less its net  
12 salvage. Net Salvage is the salvage value received for the asset upon retirement less  
13 the cost to retire the asset. When the cost to retire exceeds the salvage value, the  
14 result is negative net salvage.

15 Inasmuch as depreciation expense is the loss in service value of an asset during  
16 a defined period, e.g. one year, it must include a ratable portion of both the original  
17 cost and the net salvage. That is, the net salvage related to an asset should be  
18 incorporated in the cost of service during the same period as its original cost so that  
19 customers receiving service from the asset pay rates that include a portion of both  
20 elements of the asset’s service value, the original cost and the net salvage value.

21 For example, the full recovery of the service value of a \$1000 pole will include  
22 not only the \$1000 of original cost, but also, on average, \$250 to remove the pole at

1 the end of its life and \$50 in salvage value. In this example, the net salvage  
2 component is negative \$200 ( $\$50 - \$250$ ), and the net salvage percent is negative 20%  
3 ( $(\$50 - \$250)/\$1000$ ).

4 **Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE**  
5 **PERCENTAGES.**

6 A. I estimated the net salvage percentages incorporating the historical data for the period  
7 1987 through 2003 and considered estimates for other electric companies.

8 **Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT YOU**  
9 **USED IN THE DEPRECIATION STUDY IN WHICH YOU CALCULATED**  
10 **COMPOSITE REMAINING LIVES AND ANNUAL DEPRECIATION**  
11 **ACCRUAL RATES.**

12 A. After I estimated the service life and net salvage characteristics for each depreciable  
13 property group, I calculated the annual depreciation accrual rates for each group  
14 based on the straight line remaining life method, using remaining lives weighted  
15 consistent with the average service life procedure. The calculation of annual  
16 depreciation accrual rates were developed as of December 31, 2003.

17 **Q. PLEASE DESCRIBE THE STRAIGHT LINE REMAINING LIFE METHOD**  
18 **OF DEPRECIATION.**

19 A. The straight line remaining life method of depreciation allocates the original cost of  
20 the property, less accumulated depreciation, less future net salvage, in equal amounts  
21 to each year of remaining service life.

22 **Q. PLEASE DESCRIBE AMORTIZATION ACCOUNTING.**

1 A. Amortization accounting is used for accounts with a large number of units, but small  
2 asset values. In amortization accounting, units of property are capitalized in the same  
3 manner as they are in depreciation accounting. However, depreciation accounting is  
4 difficult for these assets because periodic inventories are required to properly reflect  
5 plant in service. Consequently, retirements are recorded when a vintage is fully  
6 amortized rather than as the units are removed from service. That is, there is no  
7 dispersion of retirement. All units are retired when the age of the vintage reaches the  
8 amortization period. Each plant account or group of assets is assigned a fixed period  
9 which represents an anticipated life during which the asset will render service. For  
10 example, in amortization accounting, assets that have a 10-year amortization period  
11 will be fully recovered after 10 years of service and taken off the Company books, but  
12 not necessarily removed from service. In contrast, assets that are taken out of service  
13 before 10 years remain on the books until the amortization period for that vintage has  
14 expired.

15 **Q. AMORTIZATION ACCOUNTING IS BEING IMPLEMENTED FOR WHICH**  
16 **PLANT ACCOUNTS?**

17 A. Amortization accounting is only appropriate for certain General and Common Plant  
18 accounts. These accounts are General Accounts 391.1, 391.2, 391.21, 391.3, 393.0,  
19 394.1, 394.2, 394.3, 394.4, 395.1, 395.2, 395.3, 397.0, and 398.0, and Common  
20 Plant Accounts 691.1, 691.2, 691.21, 691.3, 693.0, 694.1, 694.3, 694.4, 695.2,  
21 695.3, 697.0 and 698.0, which represent less than two percent of depreciable plant.

1   **Q.     PLEASE USE AN EXAMPLE TO ILLUSTRATE THE DEVELOPMENT OF**  
2       **THE ANNUAL DEPRECIATION ACCRUAL RATE FOR A PARTICULAR**  
3       **GROUP OF PROPERTY IN YOUR DEPRECIATION STUDY.**

4   A.    I will use Account 3640, Poles, Towers and Fixtures, as an example because it is one  
5       of the largest depreciable groups for mass accounts and represents an easily  
6       understood asset.

7           The retirement rate method was used to analyze the survivor characteristics of  
8       this property group. Aged plant accounting data were compiled from 1991 through  
9       2003 and analyzed in periods that best represent the overall service life of this  
10      property. The life table for the 1991-2003 experience band is presented in Exhibit  
11      JJS-2. The 1991-2003 life table displays the retirement and surviving ratios of the  
12      aged plant data exposed to retirement by age interval. For example, page 2 of Exhibit  
13      JJS-2, shows \$117,735 retired during age interval 0.5-1.5 with \$132,920,945 exposed  
14      to retirement at the beginning of the interval. Consequently, the retirement ratio is  
15      0.0009 ( $\$117,735 / \$132,920,945$ ) and the surviving ratio is .9991 ( $1 - .0009$ ). The life  
16      table, or original survivor curve, is plotted along with the estimated smooth survivor  
17      curve, the 44-R1.5 on page 1 of Exhibit JJS-2.

18           My calculation of the annual depreciation related to original cost of electric  
19      utility plant at December 31, 2003, is presented on pages 1 and 2 of Exhibit JJS-3.  
20      The calculation is based on the 44-R1.5 survivor curve, 20% negative net salvage, the  
21      attained age, and the allocated book reserve. The tabulation sets forth the installation  
22      year, the original cost, calculated accrued depreciation, allocated book reserve, future

1           accruals, remaining life and annual accrual. These totals are brought forward to the  
2           table on page III-7.

3   **Q.    WAS EXHIBIT JJS-1 PREPARED UNDER YOUR DIRECTION AND**  
4   **CONTROL?**

5   A.    Yes.

6   **Q.    IN YOUR OPINION, ARE THE DEPRECIATION AND AMORTIZATION**  
7   **RATES SET FORTH IN JJS-1 THE APPROPRIATE RATES FOR THE**  
8   **COMMISSION TO ADOPT IN THIS PROCEEDING FOR SCE&G?**

9   A.    Yes. These rates appropriately reflect the rates at which the value of SCE&G's assets  
10       is being consumed over their useful lives. These rates are an appropriate basis for  
11       setting electric rates in this matter and for the Company to use for financial purposes  
12       and in booking depreciation and amortization expense going forward.

13   **Q.    DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

14   A.    Yes.